

Appl. No. 09/745,385

Reply to Non-Final OA dated January 12, 2005

AMENDMENTS TO THE CLAIMS

Claims 1-34 and 38-46 were originally indicated as pending. However, claims 1-24 and 38-47 were actually pending. The cause of this disparity was because certain ones of the claims were misnumbered. The misnumbering was caused by two consecutive adjacent claims being numbered claim 44. Thus, starting from originally numbered claim 46, claim 46 was actually claim 47, claim 45 was actually claim 46, and the second instance of claim 44 was actually claim 45. The claim misnumbering has been corrected by the claim amendments. Thus, claims 1-34 and 38-47 were actually pending prior to this amendment.

In view of the originally pending claims 1-34 and 38-47:

- Please amend claims 2-5, 7-11, 13-15, 17-20, 22-24, 26-30, 32-34, 38-43, and 45-46;
- Please cancel claims 1, 6, 12, 16, 21, 25, 31, and 44 without prejudice;
- No claims are added or withdrawn.

Thus, claims 2-5, 7-11, 13-15, 17-20, 22-24, 26-30, 32-34, 38-43, and 45-47 remain pending.

The following listing of claims replaces all prior versions and listings of claims in the application.

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CLAIM LISTING

1. (Canceled)

2. (Presently amended) A method ~~as recited in claim 1~~, comprising:
receiving, by a USB device, a host-specific device request from an
application executing on a computing device coupled to the USB device;
identifying, by the USB device, a host-defined string descriptor defined by
the application, the host-defined string descriptor being stored in firmware of the
USB device; and

wherein the host-defined string descriptor comprises a custom property section comprised of one or more custom property entries, each custom property entry comprising information that corresponds to a respective custom property for the USB device.

3. (Presently amended) A method as recited in claim 2, wherein the host-defined string descriptor further comprises:

~~a custom property section comprising one or more custom property entries,~~
~~each custom property entry corresponding to a respective custom property for the~~
~~USB device; and~~

a header section comprising an indication of the number of custom property entries for which mappings exist in the custom property section.

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1 4. (Presently amended) A method ~~as recited in claim 1~~, comprising:
2 receiving, by a USB device, a host-specific device request from an
3 application executing on a computing device coupled to the USB device;
4 identifying, by the USB device, a host-defined string descriptor defined by
5 the application, the host-defined string descriptor being stored in firmware of the
6 USB device; and
7 wherein the host-defined string descriptor comprises user interface
8 information comprising an icon, a font, a picture, a label, a help page, or a URL.

9
10 5. (Presently amended) A method ~~as recited in claim 1~~, comprising:
11 receiving, by a USB device, a host-specific device request from an
12 application executing on a computing device coupled to the USB device;
13 identifying, by the USB device, a host-defined string descriptor defined by
14 the application, the host-defined string descriptor being stored in firmware of the
15 USB device; and
16 wherein the application is an operating system.

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18 6. (Canceled)
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1 7. (Presently amended) A method ~~as recited in claim 6~~, comprising:
2 querying, by a computing device coupled to a USB device, the USB device
3 with a host-specific device request for a host-defined string descriptor associated
4 with user interface information stored in firmware of the USB device;

5 responsive to the querying, receiving by the computing device, at least a
6 portion of the user interface information; and

7 wherein the host-defined string descriptor comprises a custom property
8 section comprised of one or more custom property entries, each custom property
9 entry comprising information that corresponds to a respective custom property for
10 the USB device.

11
12 8. (Presently amended) A method as recited in claim 7 6, wherein the
13 host-defined string descriptor further comprises:

14 ~~a custom property section comprising one or more custom property entries,~~
15 ~~each custom property entry corresponding to a single custom property for the USB~~
16 ~~device; and~~

17 a header section comprising an indication of the number of custom
18 properties property entries for which mappings exist in the custom property
19 section.

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1 9. (Presently amended) A method ~~as recited in claim 6~~, comprising:
2 querying, by a computing device coupled to a USB device, the USB device
3 with a host-specific device request for a host-defined string descriptor associated
4 with user interface information stored in firmware of the USB device;
5 responsive to the querying, receiving by the computing device, at least a
6 portion of the user interface information; and
7 wherein the set of user interface elements are selected from elements
8 comprising an icon, a font, a picture, a label, a help page, or a URL.

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10 10. (Presently amended) A method ~~as recited in claim 6~~, comprising:
11 querying, by a computing device coupled to a USB device, the USB device
12 with a host-specific device request for a host-defined string descriptor associated
13 with user interface information stored in firmware of the USB device;
14 responsive to the querying, receiving by the computing device, at least a
15 portion of the user interface information; and
16 wherein the at least a portion of the user interface information is in a data
17 format specified by an operating system.

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19 11. (Presently amended) One or more computer-readable media
20 containing a computer executable program that performs a method as recited in
21 claim 7 6.

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23 12. (Canceled)
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13. (Presently amended) In a USB device that responds to device requests from a host, the device requests including USB-specific device requests with corresponding USB-specified request codes and device-specific device requests with corresponding device-specified request codes, the USB-specific device requests including a GET_DESCRIPTOR device request with a corresponding GET_DESCRIPTOR request code, a method comprising: A
method as recited in claim 12,

receiving a GET_DESCRIPTOR device request that specifies a predetermined index, the GET_DESCRIPTOR device request having been received from an application executing on a remote computing device;

responding to the GET_DESCRIPTOR device request by returning a device-specific request code for subsequent use by the USB device to send an extended property descriptor responsive to subsequent receipt of a host-specific device request from the remote computing device, the extended property descriptor specifying user interface information corresponding to the USB device and provided by a vendor as being in a data format compatible with the application; and

wherein the user interface information comprises:— a custom property section comprised of one or more custom property entries, each custom property entry comprising information that corresponds to a respective custom property for the USB device.

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1 14. (Presently amended) A method as recited in claim 13~~12~~, wherein the
2 user interface information further comprises:

3 ~~a custom property section comprising one or more custom property entries,~~
4 ~~each custom property entry corresponding to a single custom property for the USB~~
5 ~~device; and~~

6 a header section comprising an indication of the number of custom
7 properties property entries for which mappings exist in the custom property
8 section.

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10 15. (Presently amended) One or more computer-readable media
11 containing a computer executable program that performs a method as recited in
12 claim 13~~12~~.

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14 16. (Canceled)

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2 17. (Presently amended) A method ~~as recited in claim 16, wherein the~~
3 ~~method further comprises comprising:~~
4 communicating, by a component of an operating system, a non-standard
5 USB device request to a device, the non-standard USB device request requesting
6 an extended property from the device, the extended property providing data that is
7 predetermined to be compatible for use by the component or the operating system,
8 the data comprising user interface information associated with the USB device;
9 responsive to the communicating, receiving, by the component, an extended
10 property descriptor from the device, the extended property descriptor comprising
11 at least the extended property; and
12 augmenting, by the operating system, a shell or user interface at the remote
13 computing device to represent the USB device.
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18. (Presently amended) A method ~~as recited in claim 16~~, comprising:
communicating, by a component of an operating system, a non-standard
USB device request to a device, the non-standard USB device request requesting
an extended property from the device, the extended property providing data that is
predetermined to be compatible for use by the component or the operating system,
the data comprising user interface information associated with the USB device;
responsive to the communicating, receiving, by the component, an extended
property descriptor from the device, the extended property descriptor comprising
at least the extended property; and

wherein the extended property descriptor further comprises a custom
property section comprised of one or more custom property entries, each custom
property entry comprising information that corresponds to a respective custom
property for the USB device.

19. (Presently amended) A method as recited in claim ~~18~~ 16, wherein
the extended property descriptor further comprises:

~~a custom property section comprising one or more custom property entries,~~
~~each custom property entry corresponding to a single custom property for the USB~~
~~device; and~~

a header section comprising an indication of the number of custom
properties property entries for which mappings exist in the custom property
section.

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1 20. (Presently amended) A method ~~as recited in claim 16, comprising:~~
2 communicating, by a component of an operating system, a non-standard
3 USB device request to a device, the non-standard USB device request requesting
4 an extended property from the device, the extended property providing data that is
5 predetermined to be compatible for use by the component or the operating system,
6 the data comprising user interface information associated with the USB device;
7 responsive to the communicating, receiving, by the component, an extended
8 property descriptor from the device, the extended property descriptor comprising
9 at least the extended property and wherein the extended property descriptor
10 comprises user interface information corresponding to the USB device, the method
11 further comprising: and
12 responsive to receiving the extended property descriptor, providing
13 information corresponding to the user interface information to one or more
14 computer program applications.

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16 21. (Canceled)
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22. (Presently amended) A USB device ~~recited in claim 21~~, comprising:
a processor;
a port coupled to the processor;
a memory coupled to the processor;
an extended property descriptor stored in the memory, the extended
property descriptor identifying a set of user interface information corresponding to
the USB device and in a data format predetermined to be compatible for use by a
requesting application executing on a remote computing device, wherein the
extended property descriptor further comprising comprises: a custom property
section comprised of one or more custom property entries, each custom property
entry comprising information that corresponds to a respective custom property for
the USB device; and
a control program module stored in the memory, the control program
module being configured to send the extended configuration descriptor to a
requestor in response to receiving a host-specific device request at the port.

23. (Presently amended) A USB device recited in claim ~~22~~ 21, wherein
the extended property descriptor further comprises:

~~a custom property section comprising one or more custom property entries,~~
~~each custom property entry corresponding to a single custom property for the USB~~
~~device; and~~

a header section comprising an indication of the number of custom
properties property entries for which mappings exist in the custom property
section.

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1 24. (Presently amended) A USB device recited in claim 22 ~~21~~, wherein
2 the set of user interface information is in a data format specified in anticipation of
3 its compatible use by an operating system.

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5 25. (Canceled)

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7 26. (Presently amended) A computer-readable storage medium ~~as recited~~
8 ~~in claim 25, wherein the computer-executable instructions further comprise~~
9 ~~instructions for:~~ comprising computer-executable instructions utilized by an
10 application program to interact with a USB device, wherein the computer-
11 executable instructions comprise:

12 receiving a request from an application program for a descriptor that
13 specifies user interface information in a data format predetermined to be
14 compatible for use by the application program and corresponding to the USB
15 device;

16 querying the USB device with a host-specific device request to obtain the
17 property descriptor;

18 responsive to the querying, receiving the descriptor;

19 providing the received property descriptor to the requesting application
20 program; and

21 augmenting, by the application program, a shell or user interface with the
22 user interface information for presentation to a user.
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1 27. (Presently amended) A computer-readable storage medium as recited
2 in claim 26 25, wherein the ~~obtained~~ property descriptor comprises: one or more
3 custom property sections, each custom property section indicating information
4 corresponding to a user interface element for the USB device.

5
6 28. (Presently amended) A computer-readable storage medium as recited
7 in claim 26 25, wherein the ~~obtained~~ property descriptor comprises:

8 a header section indicating the number of custom properties for which
9 mappings exist in the property descriptor; and,

10 one or more custom property sections, each custom property section
11 indicating information corresponding to a user interface element for the USB
12 device.

13
14 29. (Presently amended) A computer-readable storage medium as recited
15 in claim 26 25, wherein the user interface information is selected from information
16 comprising an icon, a font, a picture, a label, a help page, or a URL.

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18 30. (Presently amended) A computer comprising one or more computer-
19 readable media as recited in claim 26 25.

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21 31. (Canceled)

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1 32. (Presently amended) ~~One or more computer-readable media as~~
2 ~~recited in claim 31, One or more computer-readable media containing a computer-~~
3 ~~executable program for use in conjunction with a USB device that responds to~~
4 ~~device requests from the program, the device requests including USB-specific~~
5 ~~device requests with corresponding USB-specified request codes and device-~~
6 ~~specific device requests with corresponding device-specified request codes, the~~
7 ~~program comprising:~~

8 receiving a host-specific request for an extended property descriptor from a
9 requestor, the extended property descriptor indicating one or more user interface
10 elements that correspond to the USB device, wherein the extended property
11 descriptor further comprises: a custom property section that corresponds to a
12 user interface element of the one or more user interface elements, associated with
13 the USB device the one or more user interface elements being predetermined to be
14 compatible for use by an application executing or for execution on a remote
15 computing device; and

16 responsive to the receiving, communicating the extended property
17 descriptor to the requestor.

18
19 33. (Presently amended) One or more computer-readable media as
20 recited in claim ~~32~~ 31, wherein the extended property descriptor further comprises:
21 a header section indicating the number of custom properties for which mappings
22 exist in the property descriptor; and,

23 ~~one or more custom property sections, each custom property section~~
24 ~~corresponding to a respective user interface associated with the USB device.~~
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1 34. (Presently amended) A computer comprising one or more computer-
2 readable media as recited in claim 32 ~~31~~.

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4 35 - 37. (Canceled).

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6 38. (Presently amended) A method as recited in claim 2 ~~1~~, and further
7 comprising communicating, by the USB device, the host-defined string descriptor
8 to the application.

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10 39. (Presently amended) A method as recited in claim 2 ~~1~~, wherein the
11 host-defined string descriptor comprises information in a data format specified by
12 a host of the USB device.

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14 40. (Presently amended) A method as recited in claim 2 ~~1~~, wherein the
15 host-defined string descriptor comprises user interface elements for presentation
16 by the application to a user for interfacing with the USB device.

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18 41. (Presently amended) A method as recited in claim 2 ~~1~~, wherein the
19 host-defined string descriptor comprises one or more user interface elements such
20 as an icon, a font, a picture, a label, a help page, or a URL.

21
22 42. (Presently amended) A method as recited in claim 2 ~~1~~, wherein the
23 host-defined string descriptor comprises information for one or more user interface
24 elements in a data format specified by a host of the USB device.

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43. (Presently amended) A method as recited in claim 2~~1~~, wherein the application is an operating system.

44. (Canceled)

45 [44]. (Presently amended) A method as recited in claim 7~~6~~, wherein the method further comprises displaying, by the computing device, a set of user interface elements specified by the at least a portion to present a user interface appropriate to the USB device to a user.

46 [45]. (Presently amended) A method as recited in claim 13~~12~~, wherein the application is an operating system.

47 [46]. (Original) A computer-readable medium comprising computer-program instructions executable by a processor for:

communicating, by a component of an operating system, a non-standard USB device request to a device, the non-standard USB device request requesting an extended property from the device, the extended property providing data that is predetermined to be compatible for use by the component or the operating system, the data comprising user interface information associated with the USB device; and

responsive to the communicating, receiving, by the component, an extended property descriptor from the device, the extended property descriptor comprising at least the extended property.